VU-CALC

VU-CALC - program name 'VU-CALC' - is a spreadsheet program which allows you to organize substantial quantities of numerical data and to perform many calculations on them quickly and efficiently.

The program gives you an empty worksheet consisting of 36 columns by 26 rows, into which you can type words, numbers or formula.

Each position on the worksheet is referred to by a two-coordinate address: a letter, indicating the row, and a 2-digit number, indicating the column.

Only three rows and nine columns of the worksheet are displayed at a time, however, the TV screen acts as a movable window over the entire worksheet. To view other parts of the worksheet, you can move this window by pressing the four directional keys located at the top of your keyboard (5, 6, 7 and 8 keys).

A complete sample program run with actual screen copies and comments is given on the following pages.

This sample program run is followed by solutions to actual or possible main items of inquiry:

LOAD program

SAVE program with data

SAVE program with data under user assigned name

LOAD program with data

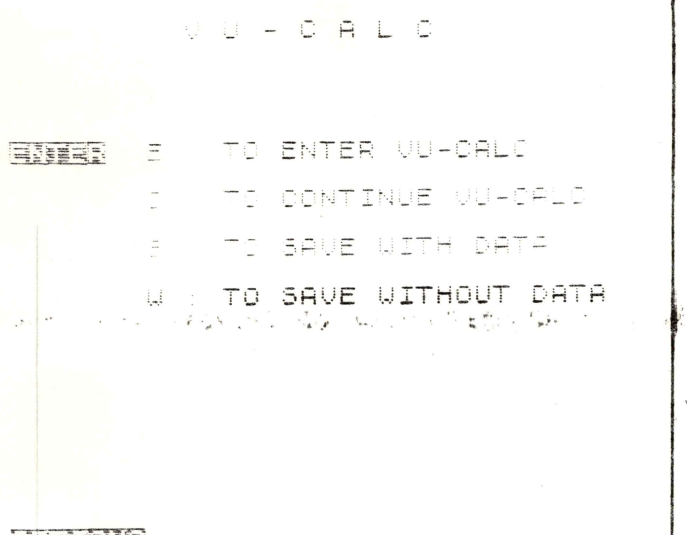
FORMULA - Delete

- Maximum number

- Expressions

- Errors

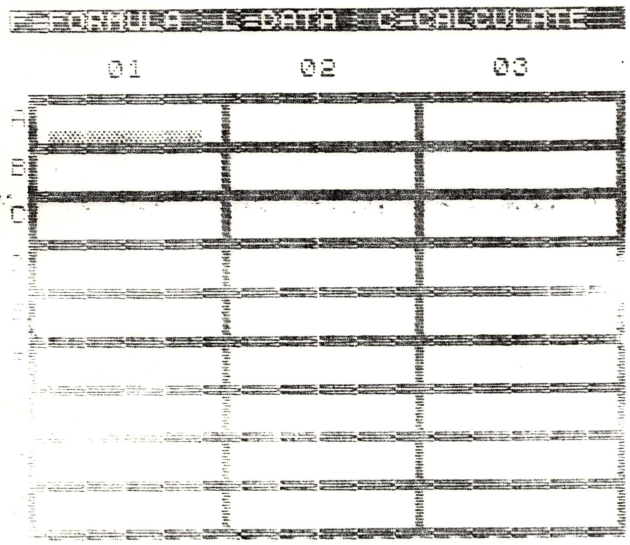
- Empty boxes



After a successful program load this menu will show on the screen.

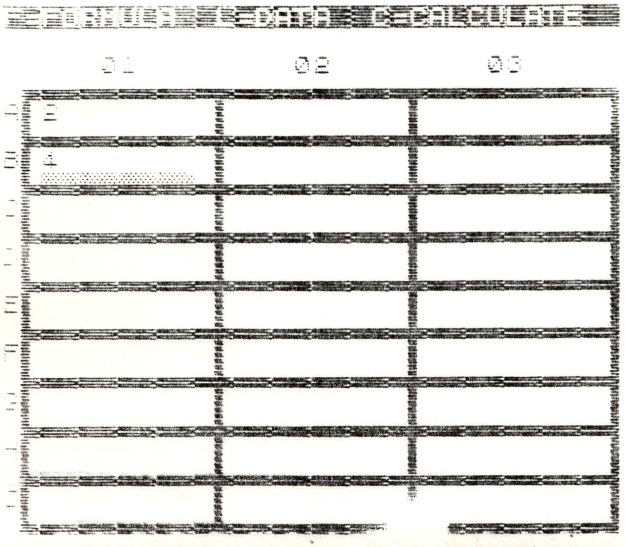
Note: The 'E' option will erase all previously entered data.
To continue or review previously entered data always use the 'C' option.

'E' option was entered



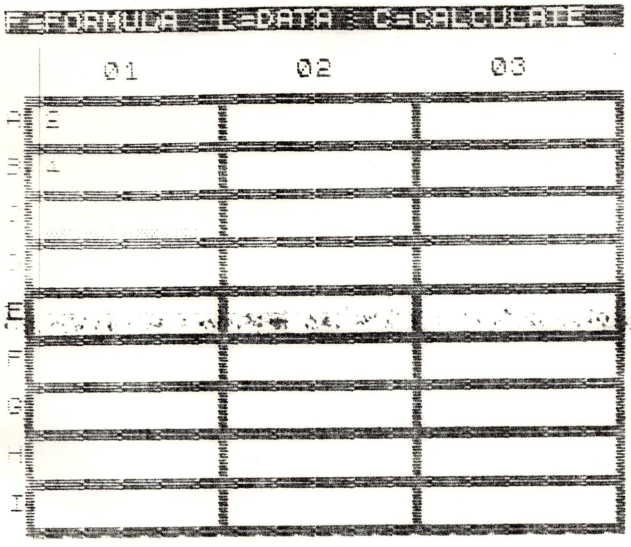
In answer to 'E' option screen now shows the first 9 rows and the first 3 columns of the total 26 rows and 36 columns of the program. The cursor, which can be moved by the 5, 6, 7 and 8 keys (no shift necessary) is in box AØ1. By moving the cursor with the 8 key the other 33 columns will show and with the 6 key the other 17 rows will show.

Pressing the 'H' key will return the cursor to box AØ1.



To enter data in a box, move the cursor to the box, press the 'L' key and enter the data, then press the ENTER key.

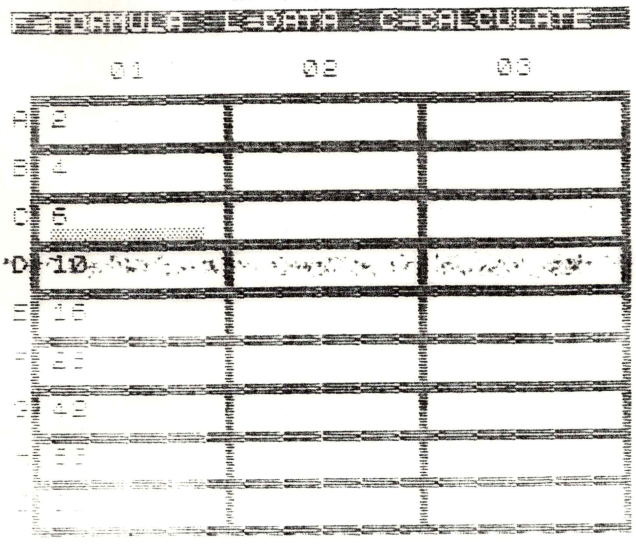
In the sample '2' was entered in box AØ1 and '4' in box BØ1



For simplicity sake let's do some calculations with the values in AØ1 and BØ1.

Move cursor to box CØ1 and press F key.
Top line reads:"ENTER FORMULA"
Square cursor shows in lower left corner
Type: AØ1+BØ1 and press ENTER key
Top line reads:"(R)ELATIVE OR (A)BSOLUTE"
Type: R
Top line reads:"MOVE BY (R)OW (C)OLUMN OR (E)XIT"
Type: R
Top line reads:"TO ROW?"
Type: I
Top line reads:"F=FORMULA L=DATA C=CALCULATE"
Bottom line reads: AØ1+BØ1

Press 'C' for calculate

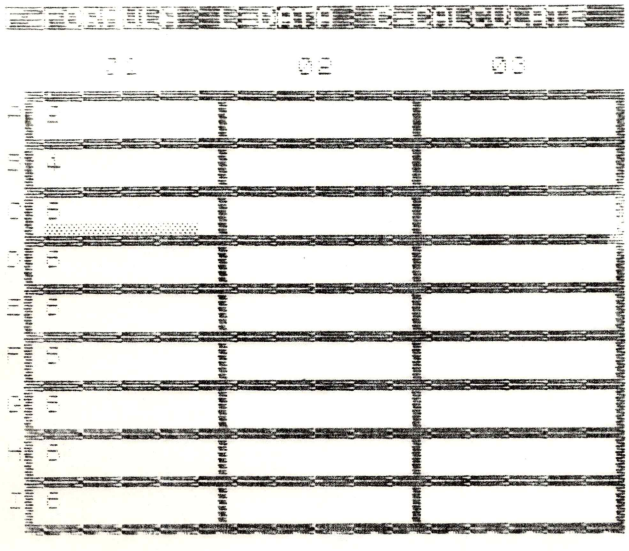


After the screen went blank for a few seconds this screen will show.

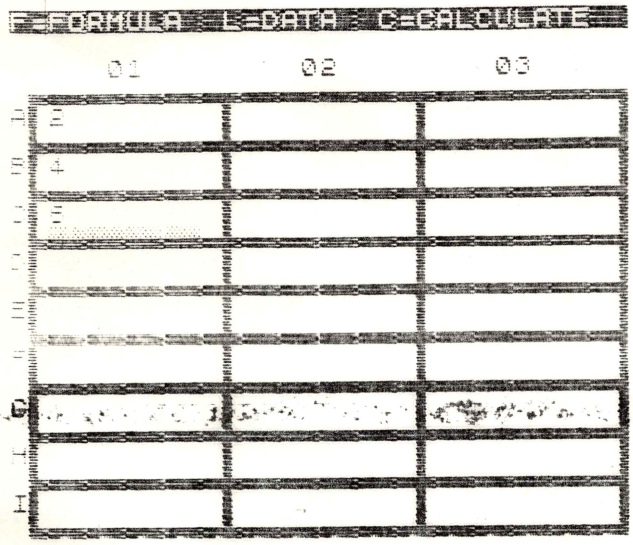
In the above answers we specified that we wanted in rows 'C' to 'I' the sum of the two boxes preceeding the row:

CØ1=AØ1+BØ1 RELATIVE TO ROW 'I'

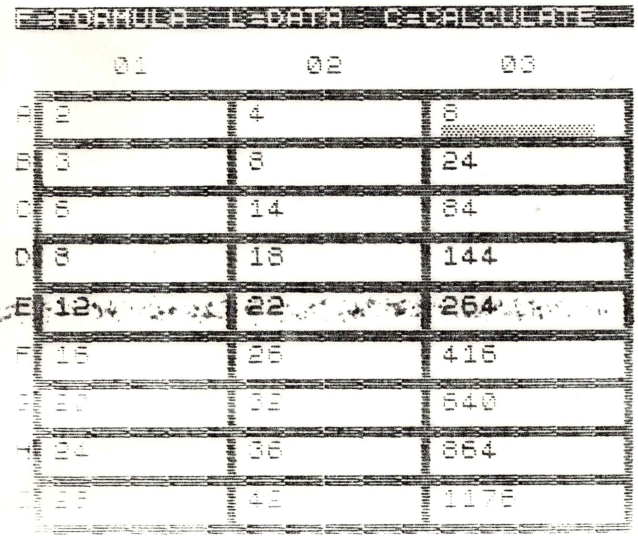
Thus, the formula for box DØ1 is BØ1+CØ1 and for box IØ1, GØ1+HØ1.
At any time that the amount in a box is the result of a formula, moving the cursor to that box, will cause the formula to be shown in the lower left hand corner of the screen. For example moving the cursor to box G would show EØ1+FØ1



If in the above answers we would have specified ABSOLUTE (instead of RELATIVE) then this screen would show after the calculation, i.e. in each row the same amount, since ABSOLUTE means that only the values of the original formula should be used. Moving the cursor would show for each box the formula: AØ1+BØ1



If the answer to "MOVE BY (R)OW (C)OLUMN OR (E)XIT" is 'E' then the formula only will be applied once. Reference to ROWS or COLUMNS is not possible.

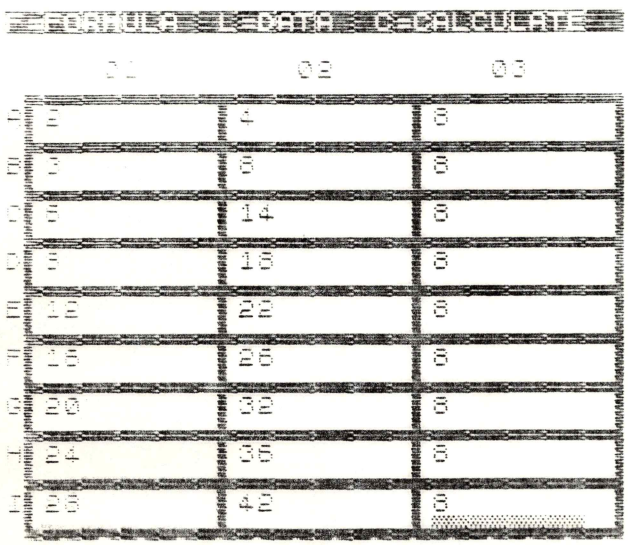


In this example values have been entered in columns Ø1 and Ø2.

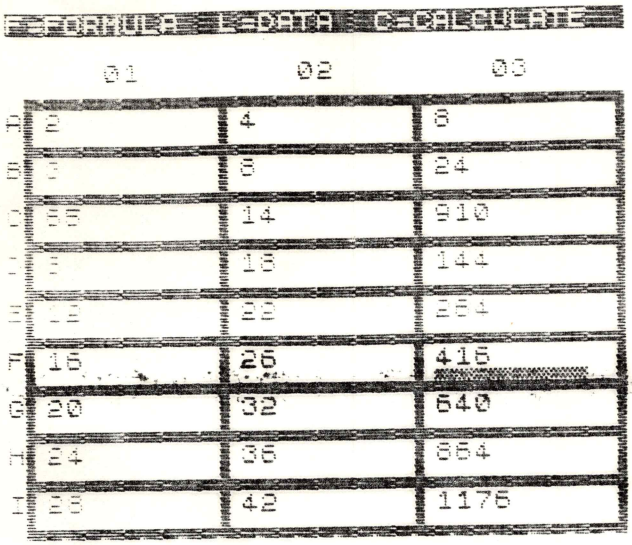
The formula entered for row A column Ø3 is:

AØ1*AØ2
(R)ELATIVE
MOVE BY (R)OW
TO ROW I

Again, since we specified 'R' (relative), the program will automatically substitute the correct values depending on the row, i.e. AØ1*AØ2, BØ1*BØ2, CØ1*CØ2 etc.

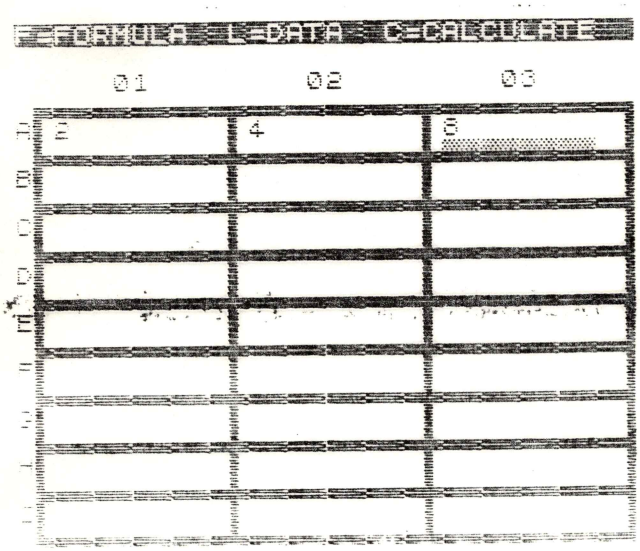


If we specify 'A' (absolute) instead of 'R' then only the values of the original formula will be used - AØ1 and AØ2 - and the answer for each row will be the same.



Once the formula has been established, it is not necessary to reenter the specifications if values in the boxes, to which the formula applies, are changed. Entering 'C' (calculate) after the change(s) is sufficient.It is also not necessary that the formula cursor is at row or column where the change was made.

For example, if we change the value in box CØ1 from 6 to 65 (move cursor to CØ1, press 'L', type 65, press ENTER), then it is not necessary to have the cursor in box AØ3, where the formula was originally entered or at box CØ3, where the change was made. The cursor can be in any one of the boxes covered by the formula specifications (here in box FØ3)



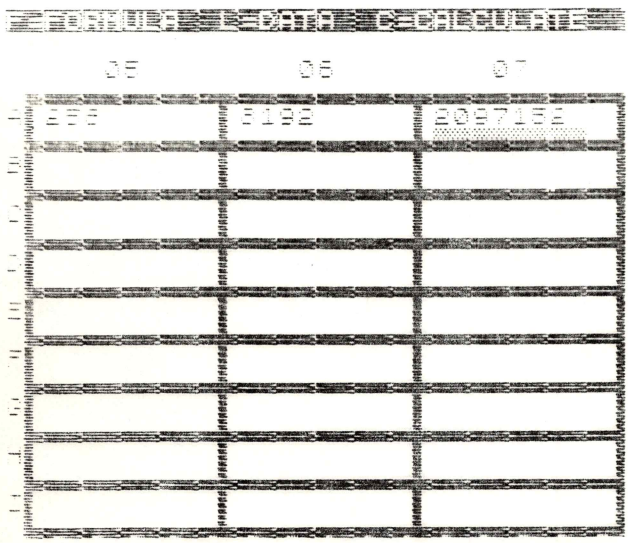
So far we have applied the formula by (R)OW.

An example of application by (C)OLUMN is:

Cursor AØ1	Press L	Type 2	ENTER
Cursor AØ2	Press L	Type 4	ENTER
Cursor AØ3	Press F	Type AØ1*AØ2	ENTER
(R)elative or (A)bsolute		Type 'R'	
Move by (R)ow (C)olumn		Type 'C'	
To Column		Type 'Ø7'	

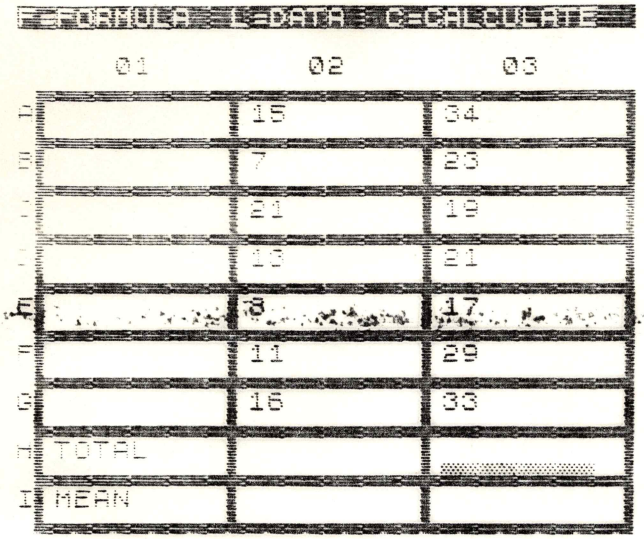
Then press 'C' to calculate.

The screen will show the first 3 columns with the result of the calculation AØ1*AØ2 in column Ø3.

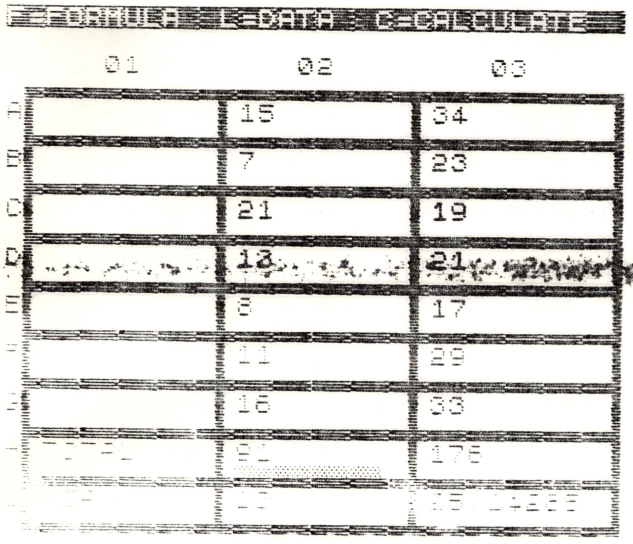


Moving the 8 cursor will show the result of the relative calculations in the other columns, with the final calculation AØ5*AØ6 in column Ø7 as specified.

Please note that reference to columns always should be in a 2 digit format i.e. Ø3, Ø8, 10 etc.



In this sample we have input values in columns Ø2 and Ø3 - rows A thru G in order to calculate the total and the average.



To calculate the total move the cursor to box HØ2 and press 'F' for formula.

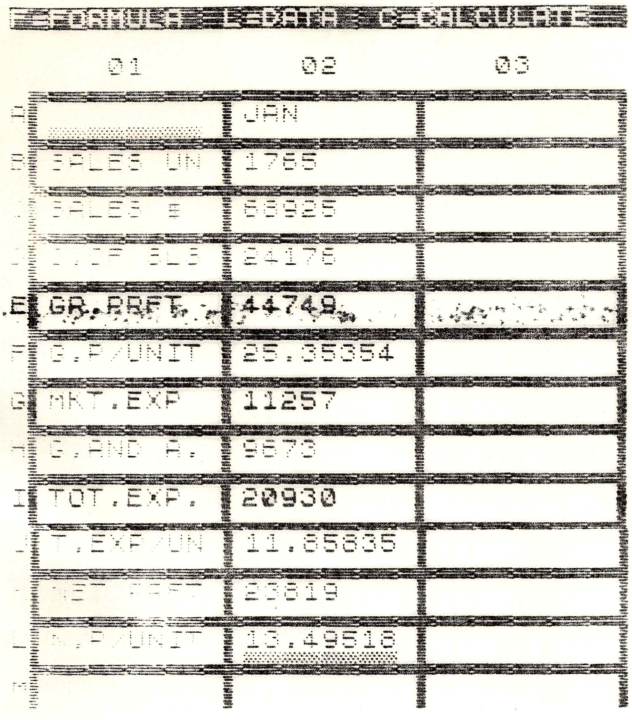
1) Enter formula AØ2+BØ2+CØ2+DØ2+EØ2+FØ2+GØ2
2) Enter 'R' for relative
3) Enter 'C' to move by column
4) Enter 'Ø3' to calculate to column Ø3

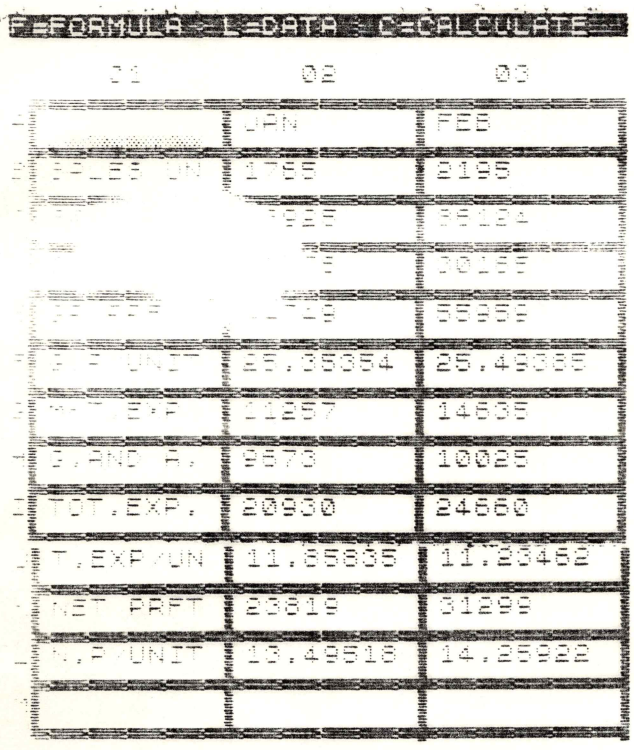
To calculate the mean move the cursor to box IØ2 and press 'F' for formula.

1) Enter formula HØ2/7
2) Enter 'R' for relative
3) Enter 'C' to move by column
4) Enter 'Ø3' to calculate to column Ø3

Enter 'C' to calculate. The screen will go blank for a moment and then show the totals in columns HØ2 and HØ3 and the means in columns IØ2 and IØ3.

If we change the number in box EØ2 from '8' to '18' (move cursor to box EØ2, press 'L', type 18 press ENTER key) then it is only necessary to press 'C' (calculate) to obtain the new total and the new mean based on this change.





GET, MAKE CURRENT and SET commands

If we use a formula in a particular box and the same relationship applies to a different box, then the original formula can be transferred with the GET, MAKE CURRENT and SET commands.

In the example we have a small commercial application for the month of January where the following formulas were used:

EØ2=CØ2-DØ2 FØ2=EØ2/AØ2 IØ2=GØ2+HØ2

JØ2=IØ2/AØ2 KØ2=EØ2-IØ2 LØ2=KØ2/AØ2

All these formulas were specified as being 'R' (relative).

Even knowing that we were going to add the other months of the year, we could not make these formulas relative to column 13, since specifying blank boxes in a formula would result in a program crash.

Once we have entered the data for February, however, it is not necessary to reenter the formulas for column Ø3, since based on the same relationship, we can use the formulas from column Ø2:

Move cursor to EØ2 Bottom line shows CØ2+DØ2
Press 'G' (get)
Press 'M' (make current)
Move cursor to EØ3
Press 'S' (set) Bottom line shows CØ3+DØ3

Repeat the same procedure for boxes FØ2, IØ2, JØ2, KØ2 and LØ2.

Press 'C' to calculate. February now shows the data and the corresponding application of the formulas.

In summary, to transfer a formula to a different box:

1) Specify the original formula as 'R'
2) Move the cursor to the original formula box
3) Press 'G'
4) Press 'M'
5) Move cursor to new box
6) Press 'S'

	01	02	03
A	SALES	1981	1982
B	JANUARY	23567	25762
C	FEBRUARY	35871	34987
D	MARCH	32118	34213
E	APRIL	29872	31445
F	MAY	28915	29006
G	JUNE	32765	34652
H	JULY	25431	27865
I	AUGUST	27646	28752
J	SUBTOTAL	235985	246682
K	SEPTEMB	29813	33012
L	OCTOBER	34710	36541
M	NOVEMBER	36952	37652
N	DECEMBER	31443	32018
O	*TOTAL*	368903	385905

	01	02	03
A	SALES	1981	1982
B	JANUARY	23567	25762
C	FEBRUARY	35871	34987
D	MARCH	32118	34213
E	APRIL	29872	31445
F	MAY	28915	29006
G	JUNE	32765	34652
H	SUBTOT 1	182908	190065
I	JULY	25431	27865
J	AUGUST	27646	28752
K	SEPTEMB	29813	33012
L	OCTOBER	34710	36541
M	NOVEMBER	36952	37652
N	DECEMBER	31443	32018
O	SUBTOT 2	185995	195840
P	*TOTAL*	368903	385905

GET, MAKE CURRENT and SET commands (cont'd)

The limit of total characters in a formula is 32 (page 5 of instructions), so it is not possible, for example, to add data for the twelve months in a year with one formula, since

AØ1+BØ1+CØ1+DØ1+EØ1+FØ1+GØ1+HØ1+IØ1+JØ1+KØ1+LØ1

contains 47 characters, i.e. 15 more than the limit.

In such a case it is necessary to split the rows or columns that have to be added and to work with sub-totals.

In the example we want to add sales figures by month for the years 1981 and 1982.
It would be possible to have a sub-total after August, since the formula

BØ2+CØ2+DØ2.....+IØ2

would contain 31 characters, and then to add **September thru December to this subtotal:**

JØ2+KØ2+LØ2+MØ2+NØ2

However, a far better solution would be to split the year in two equal parts, have a shorter formula and to apply this same formula for the two sub-totals:

Move cursor to box HØ2
Formula BØ2+CØ2+DØ2+EØ2+FØ2+GØ2
Relative to Row H

Press 'G', 'M' Move cursor to HØ3 Press 'S'
Press 'G', 'M' Move cursor to OØ2 Press 'S'
Press 'G', 'M' Move cursor to OØ3 Press 'S'

The formula is now set relative to all sub-total boxes.
The formula for the total is now a simple HØ2+OØ2.
Again with the G(et), M(ake current) and S(et) command we can transfer this formula to OØ3.

If now we press C(alculate) all subtotals and totals will be given at once.

LOAD program	Normal procedure. After a successful load menu appears on the screen. 'E' option of menu erases previous recorded data.
SAVE program with data	Use 'S' option of menu User assigned program name is ignored. Program will automatically assign 'VU-CALC' (inverted 'C') as name for saved programs. Although loading time for VU-CALC is only 2 min. 10 sec. , saving a program with data will take approximately 4 min. 20 sec., since the saving process will store all 936 boxes even when not used to enter data.
SAVE program with data under user assigned name 3000 CLS 3005 PRINT "PUT TAPE ON RECORD" 3010 PRINT 3030 INPUT O$ 3040 SAVE "VU-CALC" 3050 GOTO 110 4000 CLEAR 4010 GOTO 3000	Change program line 3040 from SAVE "VU-CALC" to SAVE O$ 3000 CLS 3005 PRINT "PUT TAPE ON RECORD" 3010 PRINT 3030 INPUT O$ 3040 SAVE O$ 3050 GOTO 110 4000 CLEAR 4010 GOTO 3000
LOAD program with data	Normal procedure. Loading time will be approximately 4 min. 20 sec. USE 'C' OPTION OF MENU ONLY. 'E' OPTION WILL ERASE PREVIOUSLY RECORDED DATA. Loading with user assigned name will not work without program modification. Use LOAD "VU-CALC" (inverted 'C') or LOAD ""
FORMULA - Delete	A formula can be modified or deleted by moving the cursor to the respective formula box and by pressing 'D'. The heading will momentarily show "FORMULA DELETED". To enter a new or modified formula press 'F' key, then follow normal procedure.
FORMULA - Maximum number	The instructions state on page 5 that up to 40 formulas may be used. Please note, however, that formulas which have been deleted still count for this maximum number i.e. if 10 formulas have been deleted, only 30 more formulas can be added.

FORMULA - Expressions

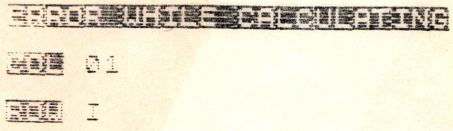
Only the following algebraic expressions may be used in a formula:

+	addition
-	subtraction
*	multiplication
/	division

Parenthesis may be used to establish priorities, e.g. (FØ1+GØ1)*HØ1

FORMULA - Errors

If, inadvertedly, an incorrect formula is entered, e.g. GO1+HØ1 instead of GØ1+HØ1 then after pressing 'C' (calculate) the error message 'C/511Ø' will show in the lower left hand corner.
To find the incorrect formula enter the command: GOTO 9ØØØ.
The screen will show the following message:



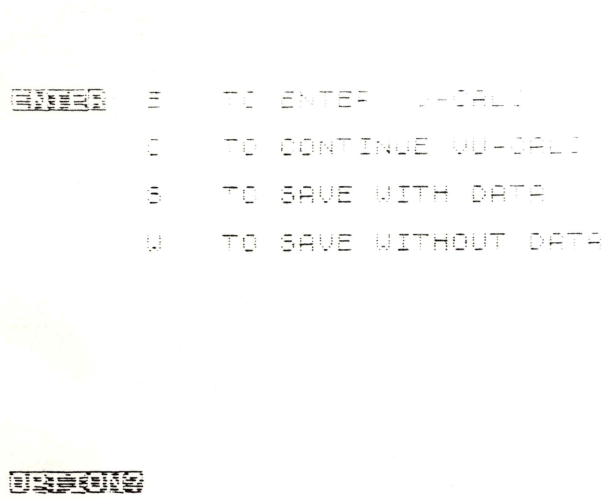
i.e. the formula in box IØ1 is incorrect.

Press ENTER which will return you to the screen where you tried to do the calculation. Move the cursor to the box with the erroneous formula and proceed as under 'FORMULA - Delete'

FORMULA - Empty boxes

In applying a formula to various rows or columns it is necessary that in all boxes referred to by the formula values have been entered. If an empty box is encountered during calculation the error message 2/511Ø will appear. Entering the command 'GOTO 9ØØØ' will identify the box.

If there is no applicable value for this box then enter 'Ø'.



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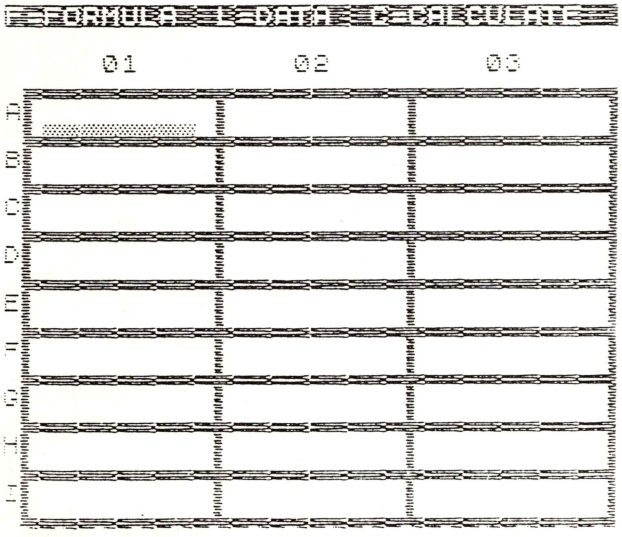

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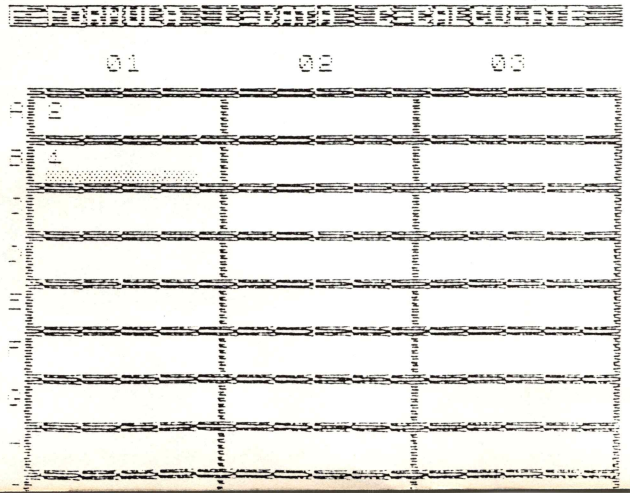
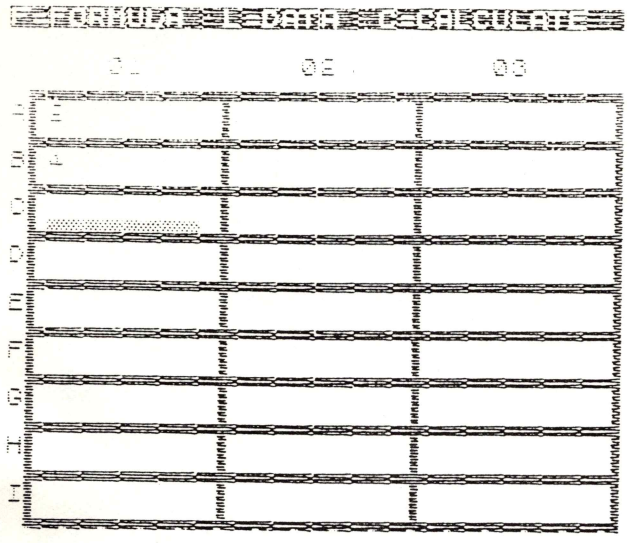


To enter data in a box, move the cursor to the box, press the 'L' key and enter the data, then press the ENTER key.

In the sample '2' was entered in box AØ1 and '4' in box BØ1



For simplicity sake let's do some calculations with the values in AØ1 and BØ1.

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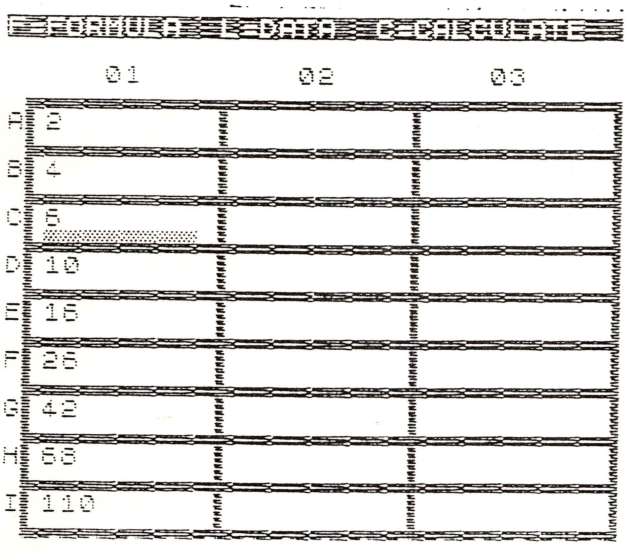
Square cursor shows in lower left corner
Type: AØ1+BØ1 and press ENTER key
Top line reads:"(R)ELATIVE OR (A)BSOLUTE"
Type: R
Top line reads:"MOVE BY (R)OW (C)OLUMN OR (E)XIT"
Type: R
Top line reads:"TO ROW?"
Type: I
Top line reads:"F=FORMULA L=DATA C=CALCULATE"
Bottom line reads: AØ1+BØ1

Press 'C' for calculate

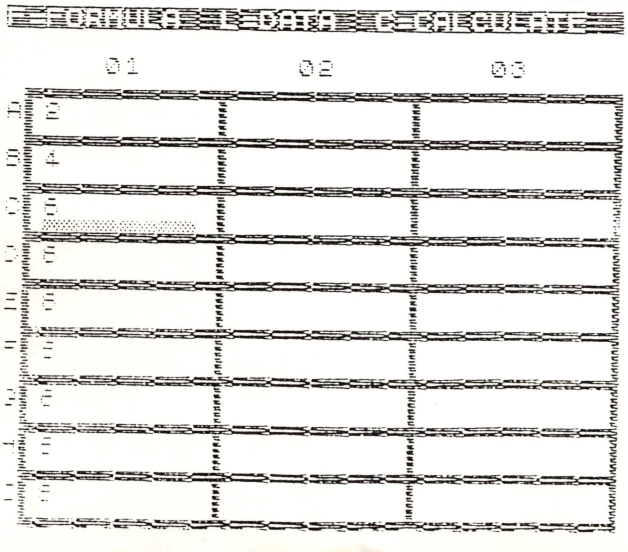


After the screen went blank for a few seconds this screen will show.

In the above answers we specified that we wanted in rows 'C' to 'I' the sum of the two boxes preceeding the row:

CØ1=AØ1+BØ1 RELATIVE TO ROW 'I'

Thus, the formula for box DØ1 is BØ1+CØ1 and for box IØ1, GØ1+HØ1.
At any time that the amount in a box is the result of a formula, moving the cursor to that box, will cause the formula to be shown in the lower left hand corner of the screen. For example moving the cursor to box G would show EØ1+FØ1



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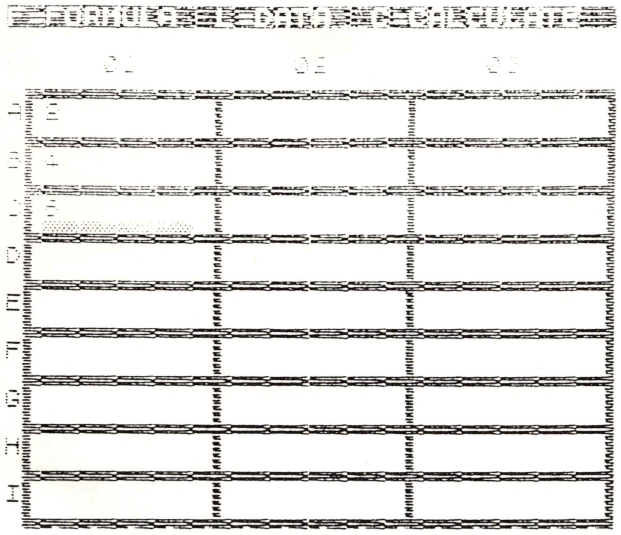
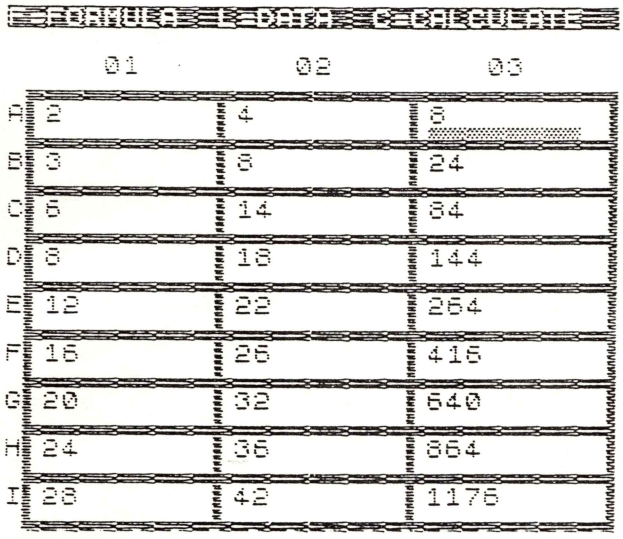


If the answer to "MOVE BY (R)OW (C)OLUMN OR (E)XIT" is 'E' then the formula only will be applied once. Reference to ROWS or COLUMNS is not possible.

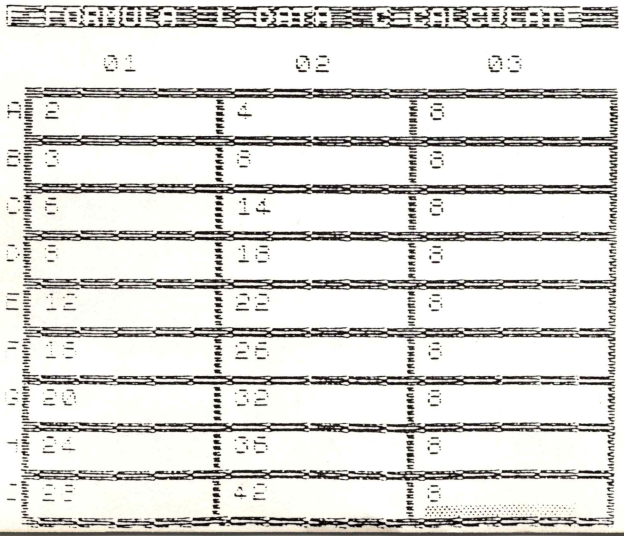


In this example values have been entered in columns Ø1 and Ø2.

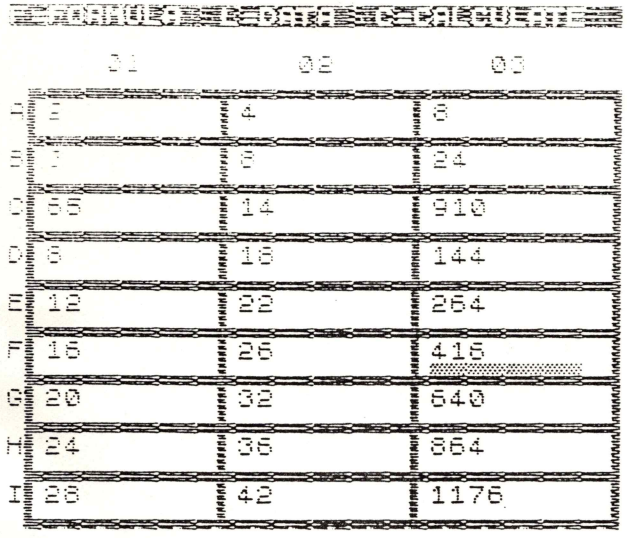
The formula entered for row A column Ø3 is:

AØ1*AØ2
(R)ELATIVE
MOVE BY (R)OW
TO ROW I

Again, since we specified 'R' (relative), the program will automatically substitute the correct values depending on the row, i.e. AØ1*AØ2, BØ1*BØ2, CØ1*CØ2 etc.



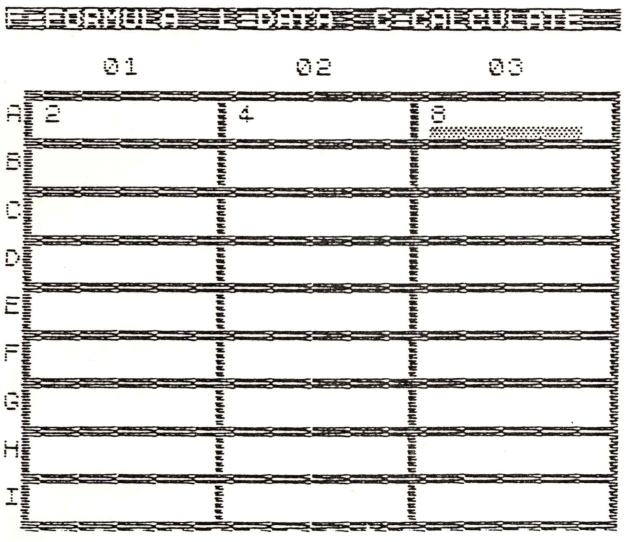
If we specify 'A' (absolute) instead of 'R' then only the values of the original formula will be used - AØ1 and AØ2 - and the answer for each row will be the same.



	01	02	03
A	2	4	8
B	3	8	24
C	65	14	910
D	8	18	144
E	12	22	264
F	18	28	418
G	20	32	640
H	24	36	864
I	28	42	1176

Once the formula has been established, it is not necessary to reenter the specifications if values in the boxes, to which the formula applies, are changed. Entering 'C' (calculate) after the change(s) is sufficient. It is also not necessary that the formula cursor is at row or column where the change was made.

For example, if we change the value in box CØ1 from 6 to 65 (move cursor to CØ1, press 'L', type 65, press ENTER), then it is not necessary to have the cursor in box AØ3, where the formula was originally entered or at box CØ3, where the change was made. The cursor can be in any one of the boxes covered by the formula specifications (here in box FØ3)



	01	02	03
A	2	4	8
B			
C			
D			
E			
F			
G			
H			
I			

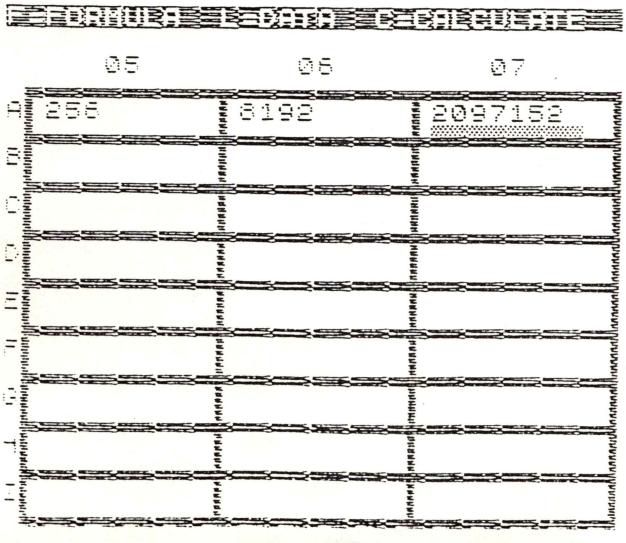
So far we have applied the formula by (R)OW.

An example of application by (C)OLUMN is:

```
Cursor AØ1  Press L  Type 2  ENTER
Cursor AØ2  Press L  Type 4  ENTER
Cursor AØ3  Press F  Type AØ1*AØ2  ENTER
(R)elative or (A)bsolute     Type 'R'
Move by (R)ow (C)olumn       Type 'C'
To Column                    Type 'Ø7'
```

Then press 'C' to calculate.

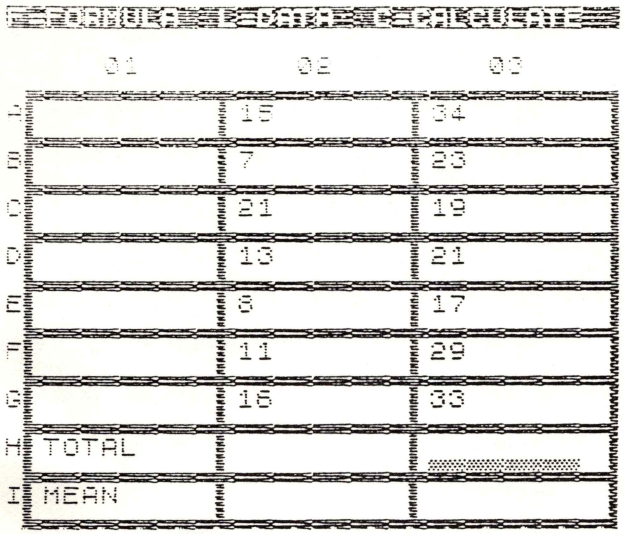
The screen will show the first 3 columns with the result of the calculation AØ1*AØ2 in column Ø3.



	05	06	07
A	256	8192	2097152
B			
C			
D			
E			
F			
G			
H			
I			

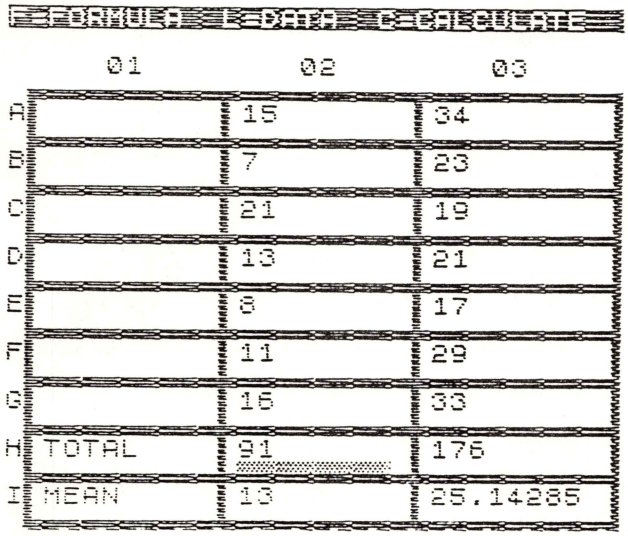
Moving the 8 cursor will show the result of the relative calculations in the other columns, with the final calculation AØ5*AØ6 in column Ø7 as specified.

Please note that reference to columns always should be in a 2 digit format i.e. Ø3, Ø8, 10 etc.



	01	02	03
A		15	34
B		7	23
C		21	19
D		13	21
E		8	17
F		11	29
G		16	33
H	TOTAL		
I	MEAN		

In this sample we have input values in columns Ø2 and Ø3 - rows A thru G in order to calculate the total and the average.



	01	02	03
A		15	34
B		7	23
C		21	19
D		13	21
E		8	17
F		11	29
G		16	33
H	TOTAL	91	176
I	MEAN	13	25.14285

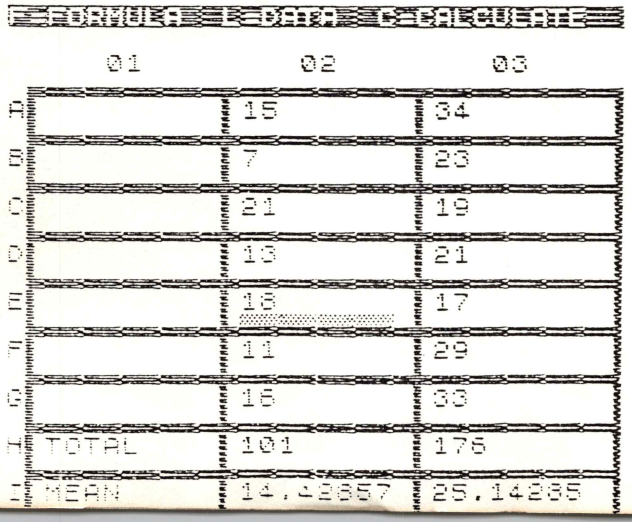
To calculate the total move the cursor to box HØ2 and press 'F' for formula.

1) Enter formula AØ2+BØ2+CØ2+DØ2+EØ2+FØ2+GØ2
2) Enter 'R' for relative
3) Enter 'C' to move by column
4) Enter 'Ø3' to calculate to column Ø3

To calculate the mean move the cursor to box IØ2 and press 'F' for formula.

1) Enter formula HØ2/7
2) Enter 'R' for relative
3) Enter 'C' to move by column
4) Enter 'Ø3' to calculate to column Ø3

Enter 'C' to calculate. The screen will go blank for a moment and then show the totals in columns HØ2 and HØ3 and the means in columns IØ2 and IØ3.



	01	02	03
A		15	34
B		7	23
C		21	19
D		13	21
E		18	17
F		11	29
G		16	33
H	TOTAL	101	176
I	MEAN	14.42857	25.14285

If we change the number in box EØ2 from '8' to '18' (move cursor to box EØ2, press 'L', type 18 press ENTER key) then it is only necessary to press 'C' (calculate) to obtain the new total and the new mean based on this change.

FORMULA DATA CALCULATE

	01	02	03
A		JAN	
B	SALES UN	1765	
C	SALES $	68925	
D	C.OF SLS	24176	
E	GR.PRFT	44749	
F	G.P/UNIT	25.35354	
G	MKT.EXP	11257	
H	G.AND A.	9673	
I	TOT.EXP.	20930	
J	T.EXP/UN	11.85835	
K	NET PRFT	23819	
L	N.P/UNIT	13.49518	
M			

FORMULA DATA CALCULATE

	01	02	03
A		JAN	FEB
B	SALES UN	1765	2195
C	SALES $	68925	86124
D	C.OF SLS	24176	30165
E	GR.PRFT	44749	55959
F	G.P/UNIT	25.35354	25.49385
G	MKT.EXP	11257	14635
H	G.AND A.	9673	10025
I	TOT.EXP.	20930	24660
J	T.EXP/UN	11.85835	11.23462
K	NET PRFT	23819	31299
L	N.P/UNIT	13.49518	14.25922
M			

GET, MAKE CURRENT and SET commands

If we use a formula in a particular box and the same relationship applies to a different box, then the original formula can be transferred with the GET, MAKE CURRENT and SET commands.

In the example we have a small commercial application for the month of January where the following formulas were used:

EØ2=CØ2-DØ2 FØ2=EØ2/AØ2 IØ2=GØ2+HØ2

JØ2=IØ2/AØ2 KØ2=EØ2-IØ2 LØ2=KØ2/AØ2

All these formulas were specified as being 'R' (relative).

Even knowing that we were going to add the other months of the year, we could not make these formulas relative to column 13, since specifying blank boxes in a formula would result in a program crash.

Once we have entered the data for February, however, it is not necessary to reenter the formulas for column Ø3, since based on the same relationship, we can use the formulas from column Ø2:

Move cursor to EØ2 Bottom line shows CØ2+DØ2
Press 'G' (get)
Press 'M' (make current)
Move cursor to EØ3
Press 'S' (set) Bottom line shows CØ3+DØ3

Repeat the same procedure for boxes FØ2, IØ2,. JØ2, KØ2 and LØ2.

Press 'C' to calculate. February now shows the data and the corresponding application of the formulas.

In summary, to transfer a formula to a different box:

1) Specify the original formula as 'R'
2) Move the cursor to the original formula box
3) Press 'G'
4) Press 'M'
5) Move cursor to new box
6) Press "S"

	01	02	03
A	SALES	1981	1982
B	JANUARY	23567	25762
C	FEBRUARY	35671	34987
D	MARCH	32118	34213
E	APRIL	29872	31445
F	MAY	28915	29006
G	JUNE	32765	34652
H	JULY	25431	27865
I	AUGUST	27646	28752
J	SUBTOTAL	235985	246682
K	SEPTEMB	29813	33012
L	OCTOBER	34710	36541
M	NOVEMBER	36952	37652
N	DECEMBER	31443	32018
O	*TOTAL*	368903	385905

	01	02	03
A	SALES	1981	1982
B	JANUARY	23567	25762
C	FEBRUARY	35671	34987
D	MARCH	32118	34213
E	APRIL	29872	31445
F	MAY	28915	29006
G	JUNE	32765	34652
H	SUBTOT 1	182908	190065
I	JULY	25431	27865
J	AUGUST	27646	28752
K	SEPTEMB	29813	33012
L	OCTOBER	34710	36541
M	NOVEMBER	36952	37652
N	DECEMBER	31443	32018
O	SUBTOT 2	185995	195840
P	*TOTAL*	368903	385905

GET, MAKE CURRENT and SET commands (cont'd)

The limit of total characters in a formula is 32 (page 5 of instructions), so it is not possible, for example, to add data for the twelve months in a year with one formula, since

AØ1+BØ1+CØ1+DØ1+EØ1+FØ1+GØ1+HØ1+IØ1+JØ1+KØ1+LØ1

contains 47 characters, i.e. 15 more than the limit.

In such a case it is necessary to split the rows or columns that have to be added and to work with sub-totals.

In the example we want to add sales figures by month for the years 1981 and 1982.
It would be possible to have a sub-total after August, since the formula

BØ2+CØ2+DØ2.....+IØ2

would contain 31 characters, and then to add September thru December to this subtotal:

JØ2+KØ2+LØ2+MØ2+NØ2

However, a far better solution would be to split the year in two equal parts, have a shorter formula and to apply this same formula for the two sub-totals:

Move cursor to box HØ2
Formula BØ2+CØ2+DØ2+EØ2+FØ2+GØ2
Relative to Row H

Press 'G', 'M' Move cursor to HØ3 Press 'S'
Press 'G', 'M' Move cursor to OØ2 Press 'S'
Press 'G', 'M' Move cursor to OØ3 Press 'S'

The formula is now set relative to all sub-total boxes.
The formula for the total is now a simple HØ2+OØ2.
Again with the G(et), M(ake current) and S(et) command we can transfer this formula to OØ3.

If now we press C(alculate) all subtotals and totals will be given at once.

LOAD program	Normal procedure. After a successful load menu appears on the screen. 'E' option of menu erases previous recorded data.
SAVE program with data	Use 'S' option of menu User assigned program name is ignored. Program will automatically assign 'VU-CALC' (inverted 'C') as name for saved programs. Although loading time for VU-CALC is only 2 min. 10 sec. , saving a program with data will take approximately 4 min. 20 sec., since the saving process will store all 936 boxes even when not used to enter data.
SAVE program with data under user assigned name 3000 CLS 3005 PRINT "PUT TAPE ON RECORD" 3010 PRINT 3030 INPUT O$ 3040 SAVE "VU-CALC" 3050 GOTO 110 4000 CLEAR 4010 GOTO 3000	Change program line 3040 from SAVE "VU-CALC" to SAVE O$ 3000 CLS 3005 PRINT "PUT TAPE ON RECORD" 3010 PRINT 3030 INPUT O$ 3040 SAVE O$ 3050 GOTO 110 4000 CLEAR 4010 GOTO 3000
LOAD program with data	Normal procedure. Loading time will be approximately 4 min. 20 sec. USE 'C' OPTION OF MENU ONLY. 'E' OPTION WILL ERASE PREVIOUSLY RECORDED DATA. Loading with user assigned name will not work without program modification. Use LOAD "VU-CALC" (inverted 'C') or LOAD ""
FORMULA - Delete	A formula can be modified or deleted by moving the cursor to the respective formula box and by pressing 'D'. The heading will momentarily show "FORMULA DELETED". To enter a new or modified formula press 'F' key, then follow normal procedure.
FORMULA - Maximum number	The instructions state on page 5 that up to 40 formulas may be used. Please note, however, that formulas which have been deleted still count for this maximum number i.e. if 10 formulas have been deleted, only 30 more formulas can be added.

FORMULA - Expressions

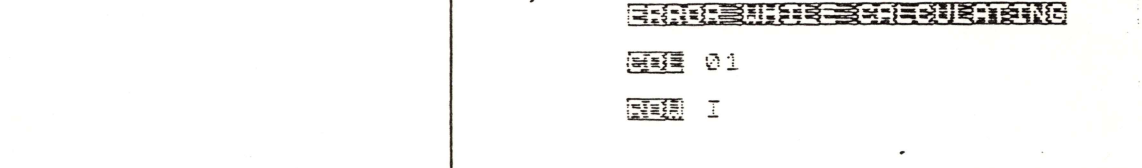
Only the following algebraic expressions may be used in a formula:

+ addition
- subtraction
* multiplication
/ division

Parenthesis may be used to establish priorities, e.g. (FØ1+GØ1)*HØ1

FORMULA - Errors

If, inadvertedly, an incorrect formula is entered, e.g. GO1+HØ1 instead of GØ1+HØ1 then after pressing 'C' (calculate) the error message 'C/511Ø' will show in the lower left hand corner.
To find the incorrect formula enter the command: GOTO 9ØØØ.
The screen will show the following message:



i.e. the formula in box IØ1 is incorrect.

Press ENTER which will return you to the screen where you tried to do the calculation. Move the cursor to the box with the erroneous formula and proceed as under 'FORMULA - Delete'

FORMULA - Empty boxes

In applying a formula to various rows or columns it is necessary that in all boxes referred to by the formula values have been entered. If an empty box is encountered during calculation the error message 2/511Ø will appear. Entering the command 'GOTO 9ØØØ' will identify the box.

If there is no applicable value for this box then enter 'Ø'.